What is Claimed is:

1. A method for creating a table of approximate quotients to exactly represent a value to a specified precision, comprising:

calculating a set of approximate quotients from a numerator and a denominator to the specified precision by a floating-point remainder technique;

sizing the table for storing said set of approximate quotients in response to the specified precision; and

storing said set of approximate quotients in the sized table.

2. A method in accordance with claim 1, wherein:

calculating said set of approximate quotients is done using a nearest rounding method.

3. A method in accordance with claim 1, wherein:

calculating said set of approximate quotients is done using a midpoint rounding method.

4. A method in accordance with claim 1, wherein:

calculating said set of approximate quotients is done using an inwards rounding method.

5. A method in accordance with claim 1, wherein:

calculating said set of approximate quotients is done using an outwards rounding method.

6. A method in accordance with claim 1, wherein:

a rounding method is selected responsive to the selected precision.

7. A method in accordance with claim 1, further comprising:

truncating trailing zeros from said set of approximate quotients.

8. A method in accordance with claim 7, wherein:

said storing said set of approximate quotients includes minimizing the amount of data.

9. An apparatus to create a lookup table, comprising:

a floating-point quotient generator to generate a plurality of approximate quotients to a specified precision;

a rounding block to round said plurality of approximate quotients; and

a table creation engine to create the lookup table put said plurality of approximate quotients in the lookup table wherein said approximate quotients exactly represent an underlying value to said specified precision.

10. An apparatus in accordance with claim 9, wherein:

said floating-point quotient generator processes base 10 floating-point values.

11. An apparatus in accordance with claim 9, wherein:

said floating-point quotient generator processes base 2 floating-point values.

12. An apparatus in accordance with claim 9, wherein:

said floating-point quotient generator processes base 8 floating-point values.

13. An apparatus in accordance with claim 9, wherein:

said floating-point quotient generator processes base 16 floating-point values.

14. An apparatus in accordance with claim 9, wherein:

said rounding block starts with a nearest rounding method preference.

15. An apparatus in accordance with claim 14, wherein:

said rounding block selects a rounding method from a group consisting of nearest rounding, midpoint rounding, inwards rounding and outwards rounding.

16. An apparatus in accordance with claim 9, wherein:

said rounding block starts with a midpoint rounding method preference.

17. An apparatus in accordance with claim 16, wherein:

said rounding block selects a rounding method from a group consisting of nearest rounding, midpoint rounding, inwards rounding and outwards rounding.

18. In a computer system, a method of efficiently generating a set of function values, comprising:

calculating a set of approximate quotients from a numerator and a denominator to a specified precision by a floating-point remainder technique;

creating a lookup table with said set of approximate quotients; and

reading one of said set of approximate quotients from said lookup table to calculate the function value to said specified precision.

19. A computer system in accordance with claim 18, wherein:

calculating said set of approximate quotients is performed using design by rounding.

20. A computer system in accordance with claim 18, wherein:

calculating said set of approximate quotients is performed using design by quotient.